system 10 also includes a host controller 12 configured to provide a V+ voltage level at an output terminal connected to a V+ line 13, and also having a COMMON terminal connected to a common line 14. The controller 12 generates data signals at a DATA OUT terminal connected to a DATA line 15 and is adapted to receive incoming data via a RETURN line 16 at a DATA IN terminal. The host controller 12 is configured to control access to a plurality of devices 30, which may be of various types, and which are grouped together in nodes 20, which are connected in a string to the host controller 12. There may be any number of nodes 20, depending upon the application. In the illustrated embodiment only the first two (nodes 0 and 1) and the last two (nodes N-1 and N) are illustrated. The nodes 20 may all be of substantially the same construction.

Please amend the paragraph bridging pages 5 and 6 to read as follows:

Further details of the node 20 are illustrated in FIG. 3. The microcontroller 21 is an 8-pin device, which may be a 12C508 or 12C509, the pins 2, 3, 7 and 8 respectively corresponding to the device terminals 24-27. The node 20 includes a power supply 36 coupled to the V+ line 13 for providing a VCC voltage to the micro controller 21 at its VCC terminal 22 (pin 1). Pin 6 is the COMMON terminal 23 connected to the COMMON line 14. The node has a DATA IN terminal 28 connected through a resister to pin 4, and pin 5 is connected through a resister to a DATA OUT terminal 29. The device pins 2, 7, 8 and 3 are, respectively, connected through resisters to transistor drivers 37 which are, in turn, connected through resisters 41 to the device terminals 24-27 which are, respectively, connectable to devices to be accessed. In the embodiment illustrated in FIG. 3, the devices are LEDs 40, the device terminals 24-27 being respectively connected to the cathodes of the LEDs, their anodes being connected to the V+ line 13. The node 20 is provided with 4-pin input and output connectors 38 and 39. Each connector

38 and 39 is connected to the V+ line 13, the COMMON or ground line 14 and the RETURN line 16. The fourth pin of the input connector 38 is connected to the DATA IN terminal 28, while the fourth pin of the output connector 39 is connected to the DATA OUT terminal 29.

Please amend the paragraph bridging pages 6 and 7 to read as follows:

In order to access the devices 30, the host controller 12 generates at its DATA OUT terminal and transmits to all of the nodes 20 a serial data signal, generally designated 50 and illustrated in FIG. 4, which includes four bits 52 of data for each node in the string. Thus, for example, if there were eight nodes, the data signal 50 would include 32 bits of information, followed by a strobe indicator 51, which may be a low level persisting for a pre-determined time period. In the illustrated embodiment the host controller 12 may have an 8-bit data bus, so the data bits 52 are arranged in 8-bit bytes 53, with each byte addressing two consecutive nodes in the string, i.e., an even-numbered node and an odd-numbered node. It will be appreciated that, when the nodes 20 are connected together in the manner illustrated in FIG. 1, the shift registers 35 of the several nodes cooperate to form a system shift register 55 of length MxN, where N is the number of nodes in the string and M is the number of devices 30 connected to each node.

Please amend the first full paragraph on page 8 to read as follows:

Referring to FIG. 6, there is illustrated an alternative embodiment of a node, designated 20A, configured for connection to a device 30 having states to be detected or monitored, such as an illuminated manual switch 70. In the illustrated embodiment the switch 70 includes a switch element 71, which may be a single-pole, double-throw switch, the movable contact of which is connected to one of the device terminals 24 and through a resistor 72 to the microcontroller 21 and, through a resistor 73, to the VCC supply voltage. One of the fixed contacts of the switch is connected to the COMMON terminal 23, while the other is disconnected. The switch 70

includes three LEDs (not shown), which are respectively connected to the other three device terminals 25-27 through three of the pins of a 4-pin connector 74, the fourth pin of which is connected to the COMMON terminal 23 (COMMON line 13). The LEDs 40 may have different colors, such as blue, green, and red, or may be of the same color.

Please amend the two full paragraphs on page 9 to read as follows:

Referring to FIG. 7, there is illustrated another node embodiment 20B, which is similar to the node embodiment 20A of FIG. 6, except in this case the accessed devices of the node include an illuminated switch 75 having a switch element 76 and a single lamp. In this case, the VCC supply voltage is connected to one of the fixed contacts of the switch element 76. The lamp (not shown) is connected to a 2-pin connector 77, one pin of which is connected to the V+ line 13, and the other pin of which is connected to a driver circuit 78, which is in turn connected to two of the device pins 7 and 8, of the microcontroller 21, the fourth device pin 3 being disconnected. The node 20B operates in substantially the same manner as described for the node 20A.

When any of the nodes in the system 10 is connected to a device having states which must be sensed or monitored, such as the switches 70 or 75 illustrated in FIGS. 6 and 7, those states must be communicated back to the host controller 12 along the RETURN line 16. For this purpose, the DATA OUT pin of the output connector 39 of the node zero (the last node in the string) is connected to its RETURN pin by a jumper 80 (see FIGS. 1, 6 and 7). This jumper is illustrated in FIGS. 1, 6 and 7 to show its position, but it will be appreciated that it will be used only if that node happens to be the node 0, i.e., the last in a string or the furthest from the host controller 12. It will also be appreciated that, if any node has a device with states which must be sensed, the jumper 80 must be utilized in node 0 to complete a return path to the host controller 12.

Please amend the paragraph bridging pages 9 and 10 to read as follows:

It can be seen that, with the foregoing arrangement, no more than four lines are required to control access to the plurality of devices in the gaming machine. Indeed, if all of the nodes are of the type illustrated in FIG. 3, wherein all four of the devices of the node are LEDs 40 or some other device of the type having states to be controlled, but not requiring any sensing or monitoring of the states, only three lines are required, and, therefore, the jumper 80 would not be connected.

Please amend the paragraph bridging pages 10 and 11 to read as follows:

While the foregoing description has related to the control of devices such as LEDs and illuminated switches, the basic principles of the invention could be applied to control of any of a large number of dual-state devices. Also, while the apparatus has particular application to control of access to large numbers of devices, it could be utilized for control of any number of devices. While the apparatus has been described in the context of control of a number of devices in a single location, such as a gaming machine, the principles described above would also be applicable to control of a number of devices at distributed locations.

REMARKS

Attached hereto are sheets entitled "Version Marked to Show Changes Made", setting forth the amended paragraphs of the specification with editorial markings.

Claims 1-36 are rejected under 35 U.S.C. §102 as being anticipated by U.S. patent publication no. 2002/0115487 to Wells. The rejection is respectfully traversed.

The rejected claims are directed to a system which provides communication between a host controller and a plurality of local controllers at nodes, each of the local controllers in turn being connected to a plurality of local devices, so that the devices can be individually controlled from the host with a minimum number of wire connections. This is achieved by connecting host